

Circuit Breaker for Equipment thermal-magnetic, Threaded neck type, Manual ON/OFF, Quick connect terminals



## Description

- Threaded neck type
- Thermal-magnetic circuit breaker
- 1-pole
- Manual ON/OFF type
- Positively trip-free release
- Insensitive to shock or vibration
- Quick connect terminals 6.3 x 0.8 mm

## Standards

- IEC 60934
- UL 1077
- GB 17701

## Applications

- Power supplies
- Uninterruptible power supply
- Power tools
- Household appliances

## Weblinks

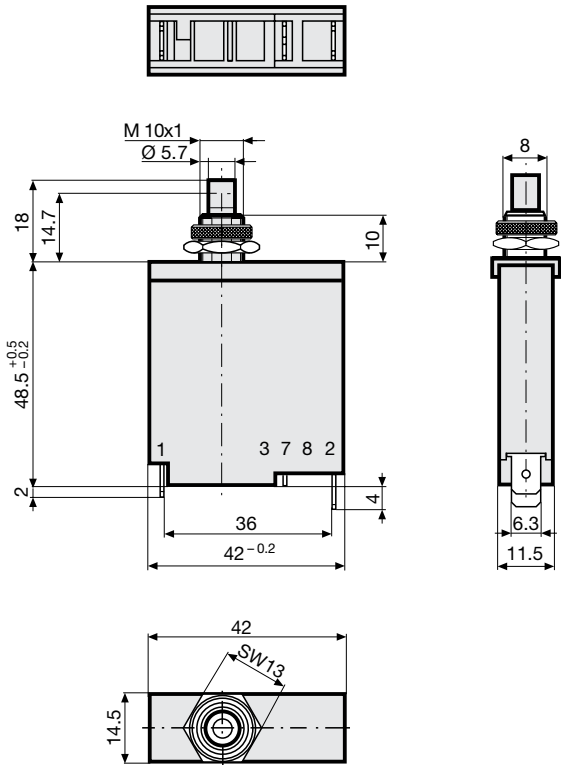
[pdf-datasheet](#), [html-datasheet](#), [General Product Information](#), [Approvals](#), [CE declaration of conformity](#), [RoHS](#), [CHINA-RoHS](#), [REACH](#), [e-Shop](#), [SCHURTER-Stock-Check](#), [Distributor-Stock-Check](#), [Detailed request for product](#), [Product News](#)

## Technical Data

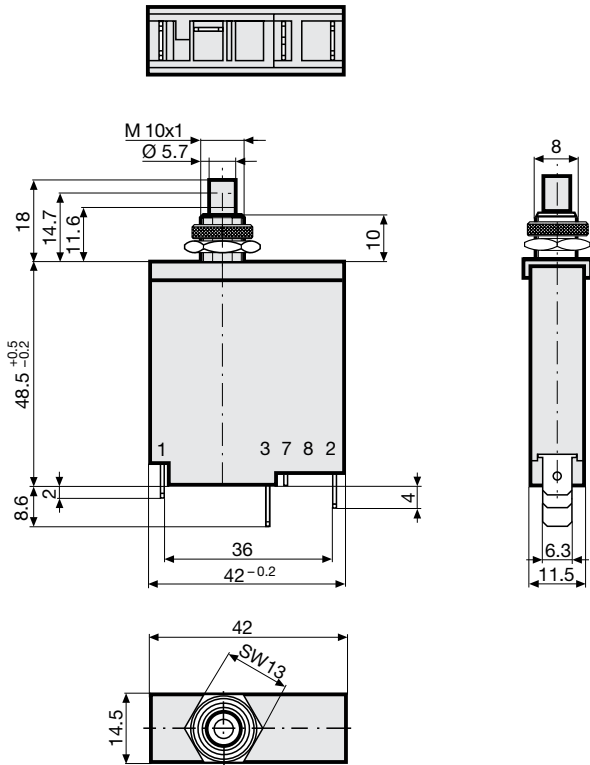
|                                    |                                                                                                               |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Rated Voltage AC                   | 240 V; 50/60                                                                                                  |
| Rated Voltage DC                   | 28 V                                                                                                          |
| Rated current range AC             | 0.05 - 15 A, see approbations                                                                                 |
| Conditional short circuit capacity | IEC: Inc, PC1, AC 240V: 1 kA                                                                                  |
| Short circuit capacity Icn         | AC 240 V : 200 A<br>AC/DC 28 V : 400 A                                                                        |
| Degree of Protection               | from front side IP 40 acc. to IEC 60529                                                                       |
| Dielectric Strength                | 50 Hz: > 1.5 kV<br>Impulse 1.2/50 $\mu$ s: > 2.5 kV                                                           |
| Insulation resistance              | 500 VDC > 100 M $\Omega$                                                                                      |
| Endurance typical                  | 2 x Ir: 5000 switching cycles                                                                                 |
| Endurance minimum                  | Manual ON/OFF type<br>AC : 2 x Ir, cos $\phi$ 0.6 :<br>DC : 2 x Ir, L/R = 2 - 3 ms :<br>5000 switching cycles |

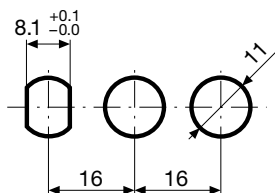
|                      |                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------|
| Overload             | IEC: min. 40 trips<br>@ 6 x Ir, cos $\phi$ 0.6<br>UL / CSA: min. 50 trips<br>@ 1.5 x Ir, cos $\phi$ 0.75            |
| Ambient temperature  | -5 °C to 60 °C                                                                                                      |
| Vibration Resistance | $\pm$ 1.5 mm @ 10 - 60 Hz<br>acc. to IEC 60068-2-6, test Fc<br>10 G @ 60 - 500 Hz<br>acc. to IEC 60068-2-6, test Fc |
| Shock Resistance     | 100 G / 6ms<br>acc. to IEC 60068-2-27, test Ea                                                                      |
| Tripping Type        | Thermal-Magnetic                                                                                                    |
| Actuation type       | Manual ON/OFF                                                                                                       |
| Weight               | ca. 10g                                                                                                             |

Dimension  
TMx12-211



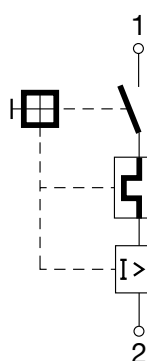
TMx12-211N



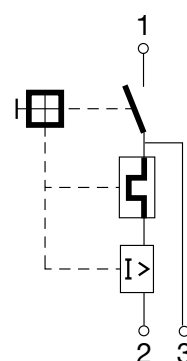


## Diagrams

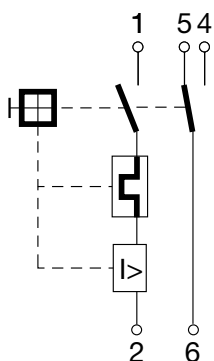
Tap 4,8 x 0,8 mm



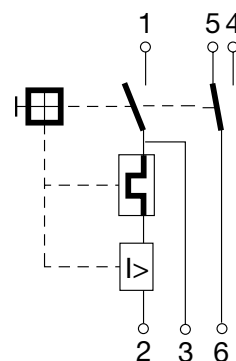
Tap 4,8 x 0,8 mm



Tap 4,8 x 0,8 mm



Tap 4,8 x 0,8 mm



## Approvals

| Approval                     |                              | Main circuit  |                  |                  | Auxiliary circuit |                  |                  |
|------------------------------|------------------------------|---------------|------------------|------------------|-------------------|------------------|------------------|
|                              |                              | Rated current | Rated voltage AC | Rated voltage DC | Rated current     | Rated voltage AC | Rated voltage DC |
| UL 1077<br>CSA C22.2 No. 235 | UL 1077<br>CSA C22.2 No. 235 | 0.05...15 A   | 240 V            | 28 V             | 2 A               | 120 V            | -                |
|                              |                              |               |                  |                  | 3 A               | -                | 28 V             |
| CSA C22.2 No. 235            | CSA C22.2 No. 235            | 0.05...16 A   | 240 V            | 28 V             | 1 A               | 240 V            | -                |
| EN 60934                     | EN 60934                     | 0.05...16 A   | 240 V            | 28 V             | 1 A               | 240 V            | 28 V             |
| GB 17701                     | GB 17701                     | 0.05...16 A   | 240 V            | 28 V             | 1 A               | 240 V            | 28 V             |

**Typical internal resistance TMF12**

| Rated Current [A] | Internal Resistance [ $\Omega$ ] |
|-------------------|----------------------------------|
| 0.05              | 335.00                           |
| 0.50              | 4.37                             |
| 1.00              | 1.23                             |
| 2.00              | 0.369                            |
| 3.00              | 0.181                            |
| 4.00              | 0.097                            |
| 5.00              | 0.055                            |
| 6.00              | 0.044                            |
| 7.00              | 0.0231                           |
| 8.00              | 0.0227                           |
| 9.00              | 0.0142                           |
| 10.00             | 0.0123                           |
| 11.00             | 0.012                            |
| 12.00             | 0.012                            |
| 13.00             | 0.0108                           |
| 14.00             | 0.0091                           |
| 15.00             | 0.0089                           |
| 16.00             | 0.0071                           |

**Typical internal resistance TMT12**

| Rated Current [A] | Internal Resistance [ $\Omega$ ] |
|-------------------|----------------------------------|
| 0.05              | 260.00                           |
| 0.50              | 4.03                             |
| 1.00              | 1.006                            |
| 2.00              | 0.323                            |
| 3.00              | 0.161                            |
| 4.00              | 0.086                            |
| 5.00              | 0.0494                           |
| 6.00              | 0.0396                           |
| 7.00              | 0.0257                           |
| 8.00              | 0.0249                           |
| 9.00              | 0.0129                           |
| 10.00             | 0.0112                           |
| 11.00             | 0.0111                           |
| 12.00             | 0.0111                           |
| 13.00             | 0.0109                           |
| 14.00             | 0.0092                           |
| 15.00             | 0.0090                           |
| 16.00             | 0.0075                           |

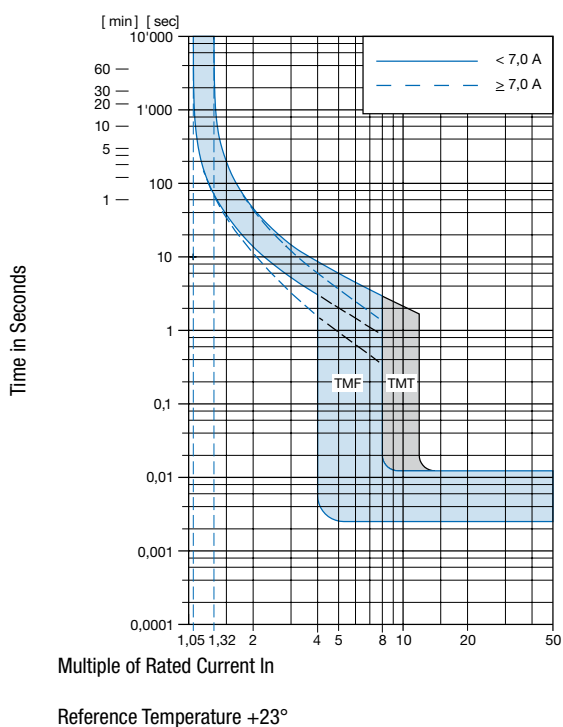
**Effect of ambient temperature**

The units are calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor (typical value) from the table below:

| Ambient temperature [°C] | Correction factor |
|--------------------------|-------------------|
| -5                       | 0.87              |
| 0                        | 0.90              |
| 10                       | 0.95              |
| 23                       | 1.00              |
| 30                       | 1.05              |
| 40                       | 1.12              |
| 50                       | 1.20              |
| 60                       | 1.30              |

Example: Rated current = 5 A; Environmental temperature = 50 °C; --> Correction factor = 1.2; Resulting current = 6.0 A

## Time-Current-Curves



## Config. Code

TM 12 - 1 2 3 A B C - 1.23

The characters are placeholders for the correspondingly keys of selections from the key tables.

TM 12 - **1** 2 3 A B C - 1.23 = Mounting

| Mounting                                           | Configuration key |
|----------------------------------------------------|-------------------|
| Threaded neck type with hexagonal- and knurled nut | 2                 |

TM 12 - 1 **2** 3 A B C - 1.23 = Actuation type

| Actuation type            | Configuration key |
|---------------------------|-------------------|
| Manual ON/OFF (push/push) | 2                 |

TM 12 - 1 2 **3** A B C - 1.23 = Terminal

| Terminal                         | Configuration key |
|----------------------------------|-------------------|
| Quick connect terminal 6.3x0.8mm | 1                 |

TM 12 - 1 2 3 **A** B C - 1.23 = Auxiliary contact

| Auxiliary contact | Configuration key |
|-------------------|-------------------|
| Auxiliary contact | S                 |

TM 12 - 1 2 3 A **B** C - 1.23 = Shunt terminal

| Shunt terminal | Configuration key |
|----------------|-------------------|
| Shunt terminal | N                 |

TM 12 - 1 2 3 A B **C** - 1.23 = Setting indication

| Setting indication | Configuration key |
|--------------------|-------------------|
| Setting indication | R                 |

TM 12 - 1 2 3 A B C **1.23** = Rated current

| Rated current | Configuration key |
|---------------|-------------------|
| 0.05 A        | 0.05              |
| 0.1 A         | 0.1               |
| 0.15 A        | 0.15              |
| 0.2 A         | 0.2               |
| 0.3 A         | 0.3               |
| 0.4 A         | 0.4               |
| 0.5 A         | 0.5               |
| 0.6 A         | 0.6               |
| 0.7 A         | 0.7               |
| 0.8 A         | 0.8               |
| 0.9 A         | 0.9               |
| 1.0           | 1                 |
| 1.1 A         | 1.1               |
| 1.2 A         | 1.2               |
| 1.3 A         | 1.3               |
| 1.4 A         | 1.4               |

Other rated currents on request

| Rated current                   | Configuration key | Rated current                   | Configuration key |
|---------------------------------|-------------------|---------------------------------|-------------------|
| 1.5 A                           | 1.5               | 5.5 A                           | 5.5               |
| 1.6 A                           | 1.6               | 6.0                             | 6                 |
| 1.7 A                           | 1.7               | 6.5 A                           | 6.5               |
| 1.8 A                           | 1.8               | 7.0 A                           | 7                 |
| 1.9 A                           | 1.9               | 7.5 A                           | 7.5               |
| 2.0 A                           | 2                 | 8.0 A                           | 8                 |
| 2.1 A                           | 2.1               | 8.5 A                           | 8.5               |
| 2.3 A                           | 2.3               | 9.0 A                           | 9                 |
| 2.5 A                           | 2.5               | 9.5 A                           | 9.5               |
| 2.8 A                           | 2.8               | 10.0 A                          | 10                |
| 3.0 A                           | 3                 | 11.0 A                          | 11                |
| 3.3 A                           | 3.3               | 12.0 A                          | 12                |
| 3.5 A                           | 3.5               | 13.0 A                          | 13                |
| 4.0 A                           | 4                 | 14.0 A                          | 14                |
| 4.5 A                           | 4.5               | 15.0 A                          | 15                |
| 5.0 A                           | 5                 | 16.0 A                          | 16                |
| Other rated currents on request |                   | Other rated currents on request |                   |

## Variants

| Rated current | Construction variants |                |                    | Config. Code  | Order Number |
|---------------|-----------------------|----------------|--------------------|---------------|--------------|
|               | Auxiliary contact     | Shunt terminal | Setting indication |               |              |
| 1.2 A         |                       |                |                    | TM12-221-1.2  | 4410.0003    |
| 10.0 A        |                       |                |                    | TM12-221-10   | 4410.0024    |
| 2.5 A         | ●                     |                |                    | TM12-221S-2.5 | 4410.0087    |
| 16.0 A        |                       |                |                    | TM12-221-16   | 4410.0142    |
| 1.2 A         |                       |                |                    | TM12-221-1.2  | 4410.0157    |
| 2.0 A         |                       |                |                    | TM12-221-2    | 4410.0166    |
| 3.5 A         | ●                     |                |                    | TM12-221S-3.5 | 4410.0397    |
| 0.3 A         |                       |                |                    | TM12-221-0.3  | 4410.0437    |
| 4.0 A         |                       |                | ●                  | TM12-221R-4   | 4410.0625    |

Availability for all products can be searched real-time: <http://www.schurter.com/en/Stock-Check/Stock-Check-SCHURTER>

**Packaging Unit** 1 Pcs

## Accessories

### Description



T-Linie Zubehör  
Accessories to T-Line